

Antoine ESMAN

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Education

Heriot-Watt University - MSc in Robotics

Edinburgh, Scotland | 09/2025 - 08/2026

- Advanced topics: Robot Operating System (ROS2)
- Sensor fusion using Kalman filters
- Genetic and evolutionary AI, swarm intelligence and artificial neural networks from scratch
- Research paper published at the [international Human-Robot Interaction conference 2026: Yoga Coach Robot](#)
- Master Thesis on Active Slam for Marine Robotics

Epitech - Expert in Information Technologies

Lyon, France | 09/2022 - 07/2027

- Lead Web & Mobile at the Innovation Hub
- Low-level in C, Functionnal in Haskell, Object-Oriented in C++, DevOps, Network, FullStack

Charles Poncet (High School) - Scientific Baccalaureate

Cluses, France | 2019 - 2022

- A-Levels with Honors

Projects

LeRobot - AI-Driven 3D Printed Robotic Arm

Python, Machine Learning | Personal Project

3D-printed and assembled a robotic arm controlled by machine learning models and teleoperation. It focuses on imitation learning and autonomous task execution.

- Collected high-quality demonstration datasets through teleoperation.
- Leveraged VastAI cloud to train a real-time inference AI with high-end GPU.

Raytracer - 3D Rendering Engine

C++ | University Project

High-performance 3D rendering system implementing photorealistic ray tracing with real-time performance targets.

- Implemented recursive ray casting with Phong shading model
- Optimized using spatial partitioning (BVH acceleration structures)

Pomodoro - Task Management

React Native, TypeScript | Personal Project

Daily task organization using Pomodoro technique.

- Designed and implemented full-stack mobile application (frontend & backend)
- Implemented local data persistence

ZeeYou - Event Organization

Flutter, Dart | Personal Project

Real-time messaging application with integrated event coordination tools.

- Built messaging system and user management
- Implemented event planning features

Corewar - Low-Level Systems Simulator

C | University Project

Compiler and processor simulation project implementing a simplified instruction set architecture.

- Designed and implemented custom instruction set
- Built bytecode compiler from assembly language
- Created CPU simulator with execution environment and memory management
- Demonstration of deep systems programming expertise

Professional Experience

ROS2 Software Development Lead @ [Sentience Robotics](#)

Remote | 03/2025 - 01/2027

Developing an open-source ROS2 platform for universal humanoid robot control across multiple interfaces (web, game controllers, autonomous AI).

- Mediator between hardware and software teams.
- Architected and implemented full ROS2 software stack for the Inmoov open-source humanoid platform
- Designed modular control systems enabling multi-interface command handling
- Created the URDF (Unified Robot Description Format) of Inmoov from the blender files
- Managed collaborative development using Git, coordinating with cross-functional team of 11 people (hardware, software integration, AI)
- Integrated real-time camera streaming to operate the robot remotely
- Developed micro-controller interfaces for low-level motor control and sensor feedback

AI/Optimization Developer @ Reborn

Remote | 08/2025

Implemented an algorithm to create and optimize printing schedules to minimize total print time and human intervention.

- Developed a scheduling algorithm using constraint satisfaction and optimization techniques
- Created a user-friendly interface for with inputs and visualization

Developer in Industrial engineering support @ Somfy

Cluses, France | 04/2025 - 07/2025

Developed Python-based simulation framework for home automation actuators and some tools to save time on repetitive tasks for the R&D team.

- Designed and implemented physics simulation engine for blind and shutter actuator behavior
- Optimized performance for real-time simulation

Low-Code Integration Developer @ Olvid

Paris, France | 09/2024 - 03/2025

Integrated Olvid's secure messaging bots into low-code automation platforms (N8N and Active Pieces).

- Developed TypeScript connectors bridging Olvid API with third-party low-code solutions
- Reduced integration development time through reusable component library
- Implemented comprehensive API documentation and developer guides

Systems Administrator & Software Architect @ Olvid

Paris, France | 09/2023 - 12/2023

Designed and implemented multiplatform autonomous testing infrastructure.

- Architected end-to-end testing platform supporting iOS, Android, and desktop environments
- Implemented test automation using Java (Appium framework) with CI/CD pipeline integration

AI Research & Development Engineer @ PoC Innovation

Lyon, France | 04/2023 - 09/2023

Conducted research in machine learning interpretability and model explainability.

- Explored multiple deep learning architectures and interpretability techniques
- Implemented and compared various explainability approaches for neural networks

Team Lead - Hospitality Services @ Les Services d'Aline

Chinaillon (74), France | 07/2023

Managed small team for high-end accommodation management.

- Coordinated team operations and scheduling
- Maintained quality standards for 5-star properties

Hackathons & Competitions

Unibots

Edinburgh | 02/2026

- Designed and built from scratch an autonomous robot using ROS2 and Python to collect as many balls as possible in an arena with 3 other robots.

Exolegend

Lyon | 03/2025

- Cooperating with the winning team to develop a robot capable of reliably navigating a maze, dodge opponents attacks and attack them using hand crafted spears.

LeRobot Worldwide Hackathon

Lyon | 06/2025

- Developed an AI model enabling a 3D-printed robotic arm to autonomously grasp and manipulate objects through imitation learning techniques.

Technical Competencies

Programming Languages	C, C++, Python, TypeScript, Java, Bash, Haskell, Rust
Robotics & Control Systems	ROS2, ROS, Motion Planning, Real-Time Systems
Software Architecture	Docker, Git, CI/CD Pipelines, Automated Testing (Unit, Integration, End-to-End)
Computer Science	Data structures, algorithms, system design, embedded systems, low-latency optimization
Platforms	Linux, macOS, Windows
Software Methodologies	Agile development, code review, technical documentation

Languages

- French:** Native language
- English:** C1: Fluent (professional working proficiency)
- German:** B1: Converse, read, write

Clubs and Societies

Boat, Mountaineering, Volleyball

Hobbies & Interests

Piano, Ski